The Role of **Commissioning** in **High** Performance.

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If you aren't interested in **sustainability**, then this isn't the stock for you.

Commissioning has **financial benefit,** but it's also the **right** thing to do.

#1

Owner is left to deal with building problems.

#2

We simplify
our buildings.


#3
We do a
better job.

It's a production **methodology.**

Hold the sprinkles.

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Commissioning is an **essential** part of ensuring the **quality** of your facility.

Commissioning is _____.

Commissioning is *Quality Assurance* .

Commissioning Outcomes.

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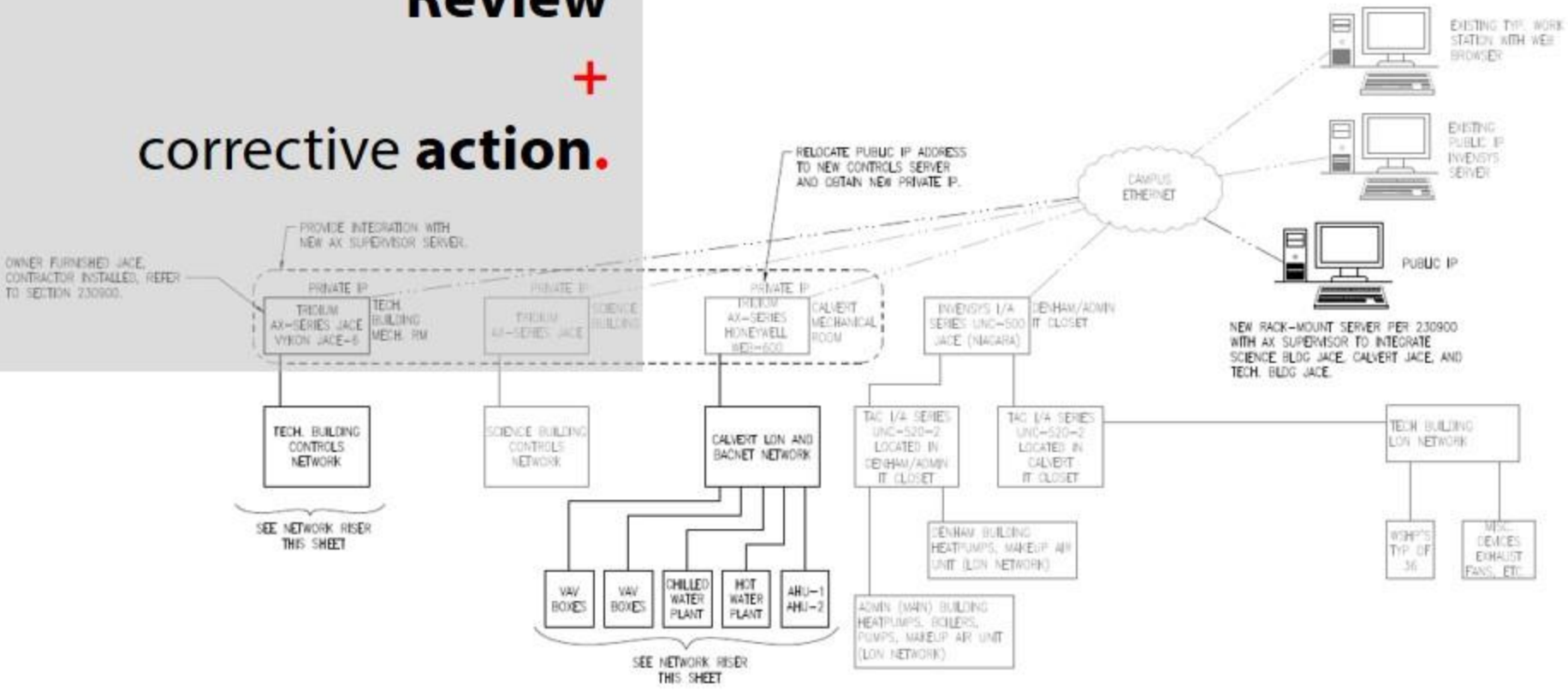
Establish
expectations + goals.

Review

+

corrective **action.**



CAMPUS CONTROL SYSTEM INFRASTRUCTURE AND NEW WORK SCHEMATIC

SCALE: NTS

NOTES: 1. NEW WORK IS DEPICTED IN BOLD, EXISTING CONDITIONS IN GREY.
2. COORDINATE WITH LOCAL IT DEPARTMENT FOR IP ADDRESSES REQUIRED.

Find the **problems.**

Average new construction energy **savings** is **13%.**[1]

For every **$1 invested**, an owner can expect **$4** in **savings** over the first 5 years.[2]

Total operational **savings** is **8 - 20%**[3]

Average **payback** on **fees** is <1.25 years.[4]

1. LBNL 2009 Study
2. LBNL 2009 Study
3. NIBS
4. OSFC

Case studies.

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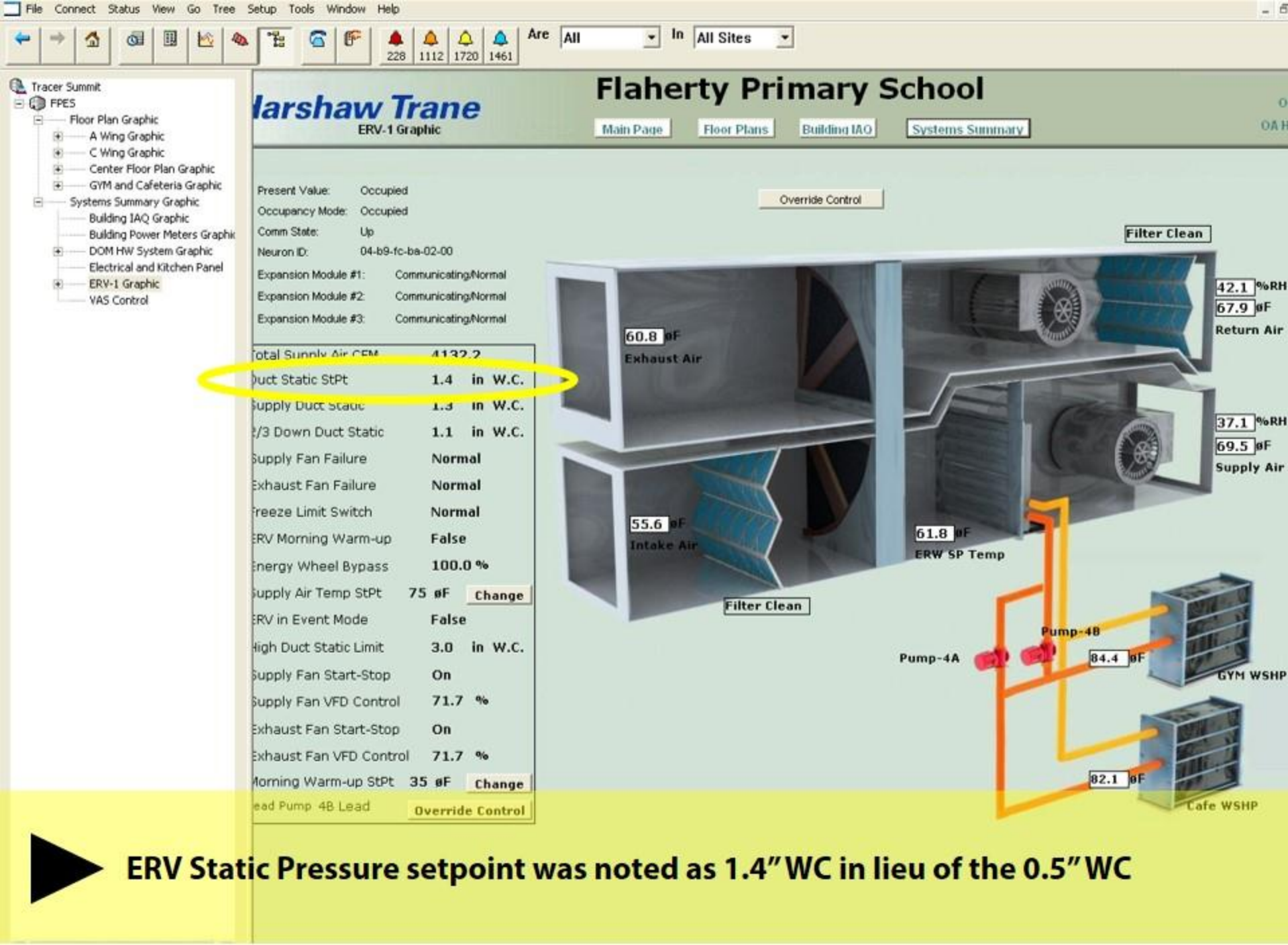
New Construction Commissioning

1. Controls performance has an impact on energy efficiency
2. Garnering input from operators improves the building quality
3. Finding issues early improves the course of the entire project

Flaherty Primary School
Meade County Schools

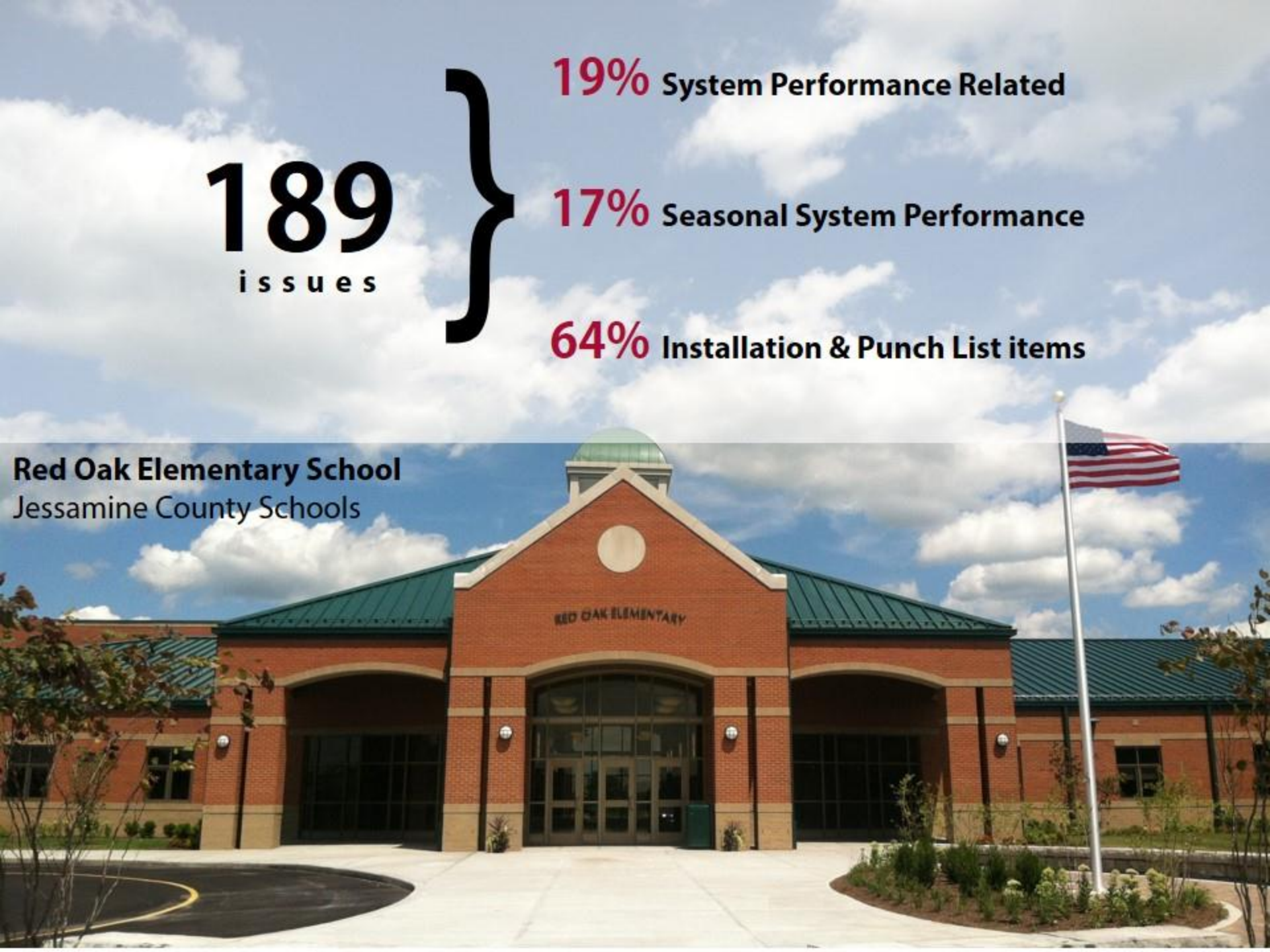
Controls Performance.



ERV Static Pressure setpoint was noted as 1.4" WC in lieu of the 0.5" WC

Meade County High School
Meade County Schools

It can happen, **again.**


189
issues
19% System Performance Related
17% Seasonal System Performance
64% Installation & Punch List items
Red Oak Elementary School
Jessamine County Schools
RED OAK ELEMENTARY

Existing **Buildings.**

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Existing Building Commissioning

1. "Good buildings" still have opportunity for improvement
2. Design that works in one instance, may not work in the next
3. Correcting operating problems does not always have a financial justification

Operation Challenges

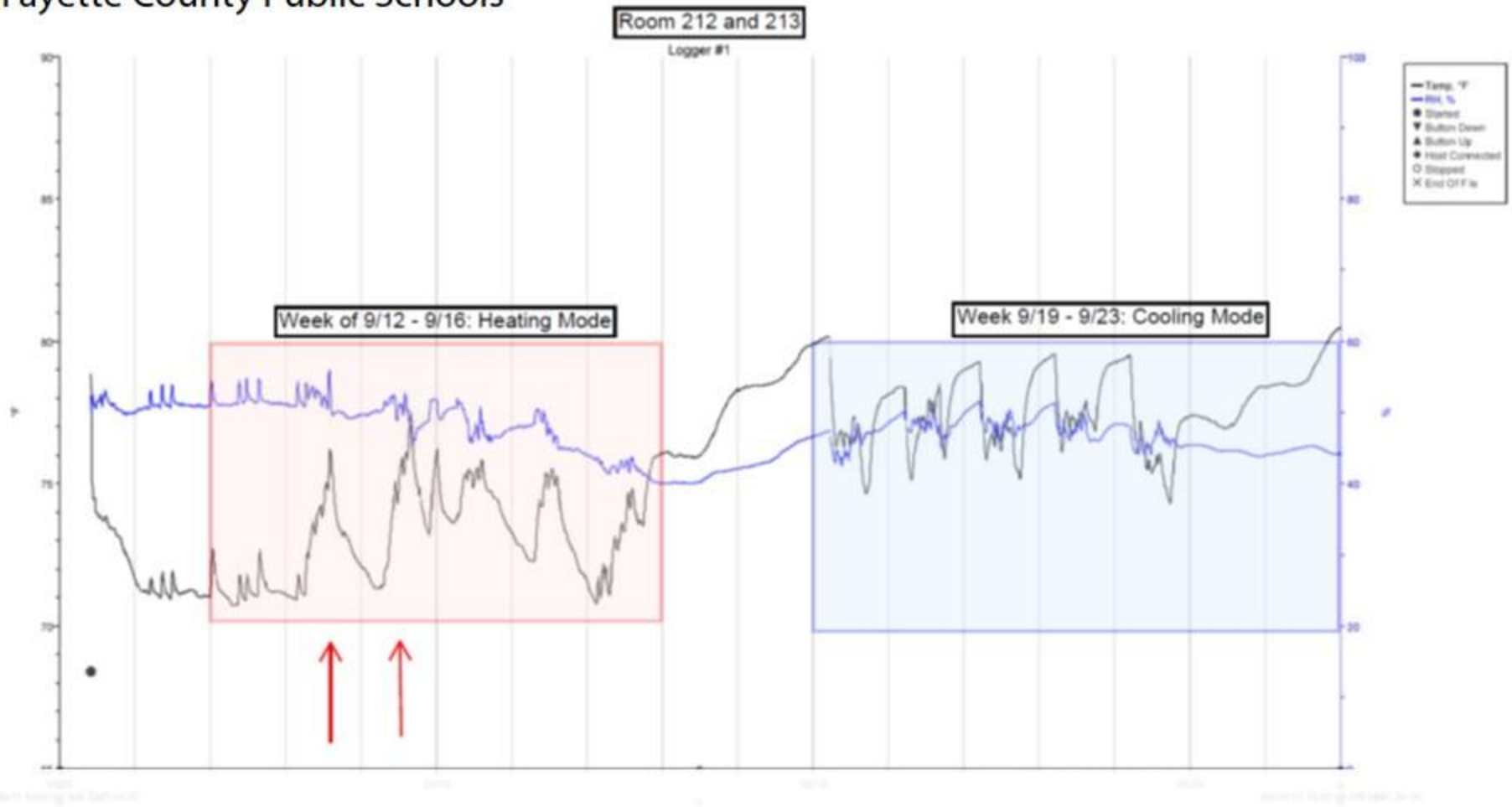
North Laurel Middle School
Laurel County Schools

It's about kids.

FAYETTE COUNTY PUBLIC SCHOOLS

Maxwell Spanish Immersion Magnet Elementary

Fayette County Public Schools

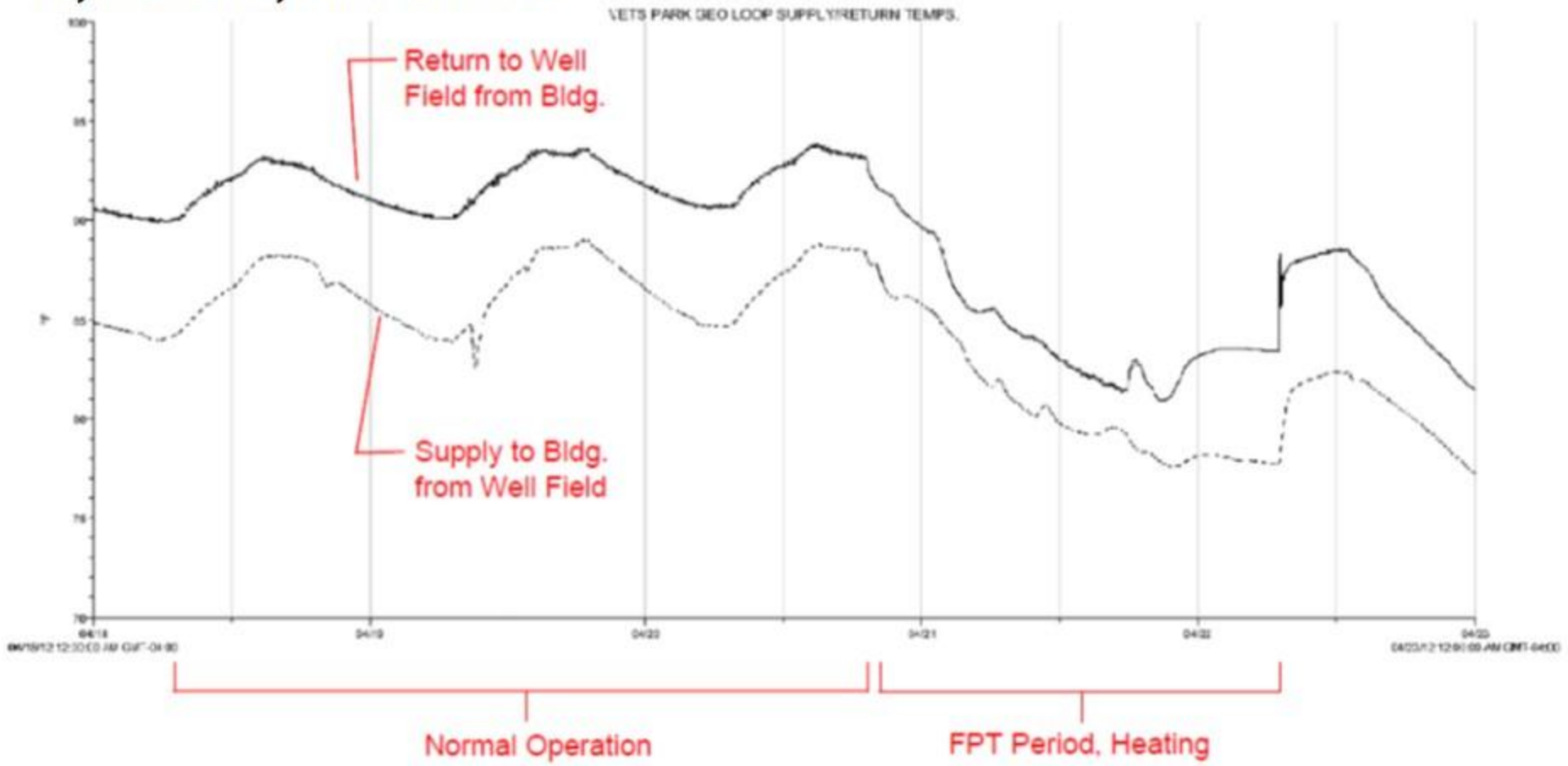


Ability within the **Owner's Hands.**

It's about kids.

FAYETTE COUNTY PUBLIC SCHOOLS

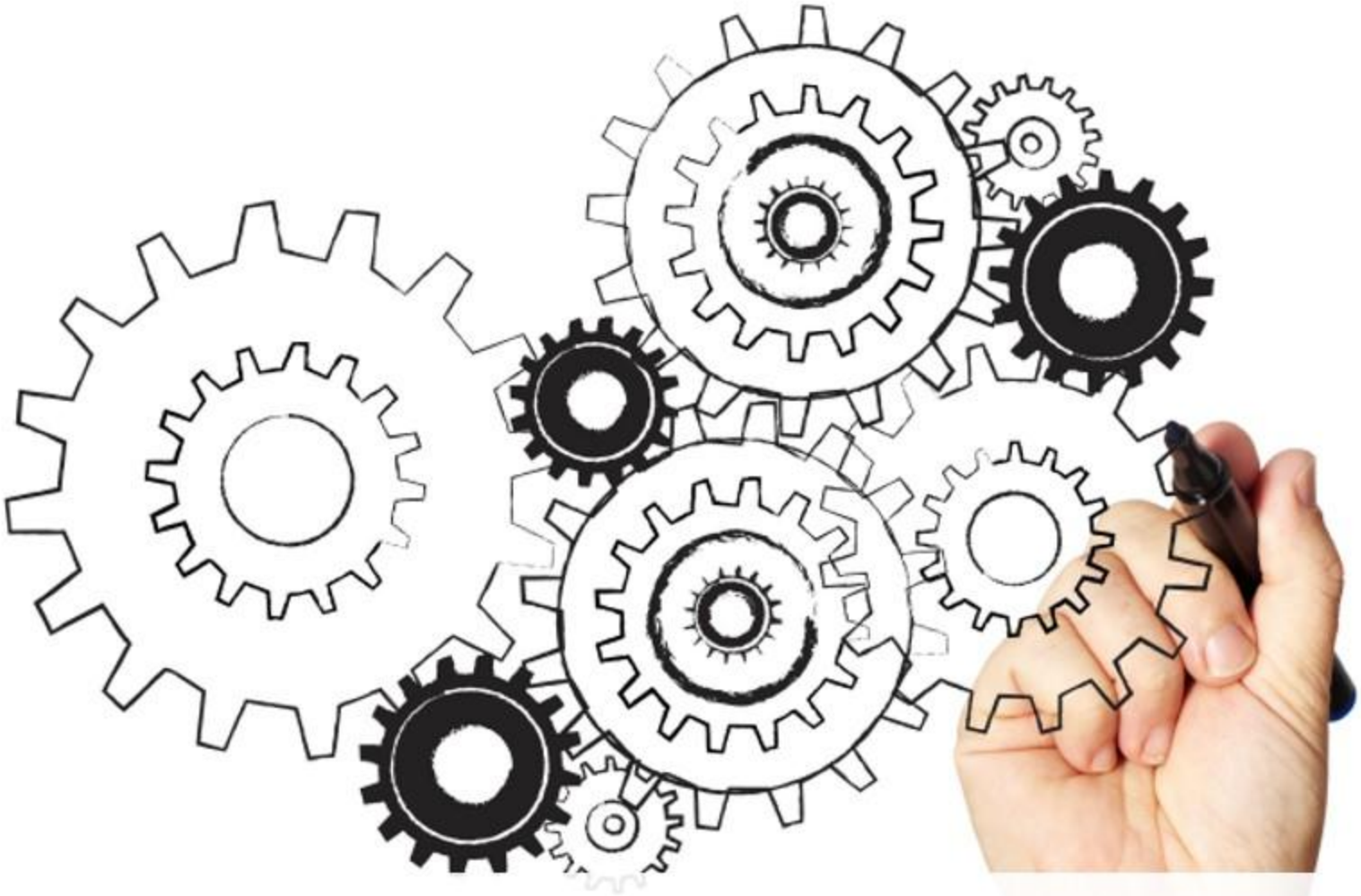
Veterans Park Elementary
Fayette County Public Schools



Pinpointing the **root** causes.

Energy Model Alternative	Equipment	Installation	Controls	Total Installed Cost	Yearly Cost Savings	Expected Payback (years)
2 – Supplemental Cooling Tower	72,300	97,050	24,750	194,100	-412	No Payback
3 – Split System Heat Pump MAUs	281,000	337,030	56,030	674,060	44,313	15.2
4 – Split System Heat Pump MAUs with Heat Recovery	328,200	337,030	56,030	721,260	53,222	13.6
5 – Geothermal Heat Pump MAUs and Cooling Tower	237,000 +72,300 309,300	293,030 +97,050 390,080	56,030 +24,750 80,780	586,060 +194,100 780,160	41,933	18.6
6 – Geothermal Heat Pump MAUs with Heat Recovery and Cooling Tower	282,400 +72,300 354,700	293,030 +97,050 390,080	56,030 +24,750 80,780	631,460 +194,100 825,560	55,170	15.0
7 – Controls Automation Upgrade	--	--	36,760	36,760	426	86.3
8 – Geothermal Domestic Hot Water	50,000	56,250	6,250	112,500	2,958	38.0

Lifecycle cost **analysis.**



It's about **making things work** right.

Commissioning for High Performance **is** _____.

- The right thing to **do.**
- Is about **prevention** & **early identification** of issues.
- Not an isolated **event.**

Thank **You.**

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